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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,277	01/30/2006	Toshihiro Kasai	285127US0PCT	5672

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EXAMINER	
REDDY, KARUNA P	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
01/23/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/566,277	KASAI ET AL.	
	Examiner	Art Unit	
	KARUNA P. REDDY	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8 and 10-13* is/are pending in the application.

4a) Of the above claim(s) *7,8 and 10-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

   Applicant's submission filed on 11/12/2008 has been entered. Claim 1 is amended; claims 2 and 9 are cancelled; and claims 7-8 and 10-13 are withdrawn from consideration as being drawn to non-elected invention. Accordingly, claims 1, 3-8 and 10-13 are currently pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bentley et al (US 4,232,135) in view of Shinoda (US 6,395,836 B1).

   Bentley et al disclose coating composition in which the film forming material consists of (a) disperse phase particles i.e. polymer microparticles stably dispersed in (b) a continuous phase (abstract). Two-pack systems are within the scope of Bentley et al's invention (column 2, lines 56-58). The two pack systems are obtained by mixing together first and second liquid constituents (column 2, lines 64-68). The polymeric

microparticles include a polymer of one or more α,β-ethylenically unsaturated monomers (column 3, lines 22-25). The microparticles may be plasticized with an inert plasticizer (column 3, lines 60-61). It is the examiner's position that microparticles are dispersed in the plasticizer, because Bentley refers to a microparticle i.e. polymer in the form of a particle is dispersed in plasticizer. See example 6 wherein the polymer microparticle is made from methyl methacrylate, methacrylic acid, azodiisobutyronitrile (reads on radical polymerization initiator of present claim 3) and graft copolymer obtained by copolymerizing glycidyl methacrylate adduct (reads on epoxy resin of present claim 6).

The continuous phase liquid may be either a single liquid or a homogeneous liquid mixture of two or more substances. Suitable are addition copolymers of the thremosetting type, provided that they are of low molecular weight and include copolymers of vinyl monomers such as methyl methacrylate (column 9, lines 35-55). Each of the two constituents of two-pack is a mixture of two reactive substances (column 10, lines 13-15). In cases where the continuous phase is based on a thermosetting resin, suitable reactive liquids are low molecular weight compounds containing free hydroxyl groups, (column 10, lines 30-34) exemplified by glycol (reads on plasticizer of claim 4 and hydroxy group containing organic solvent of claim 5).

Bentley et al fails to specifically identify a two-pack composition wherein acrylic polymeric particles have a core-shell structure (made by emulsion polymerization) and are soluble in organic solvent; and the gelation time.

However, while Bentley's examples are directed to continuous phase in which the polymeric microparticles are insoluble, Bentley et al in the broad disclosure teach that when a cured film is required to exhibit a full gloss, it may be advantageous if the microparticles can flow and such microparticles will be of the non-crosslinked type

(column 3, lines 50-55). In cases where the polymer is not crosslinked, it would be soluble in the continuous liquid phase (column 3, lines 38-40). Furthermore, Shinoda teaches a copolymer that can provide a film having excellent physical properties (column 1, lines 24-26), such as water resistance, weather resistance and thermal stability (column 8, lines 19-24), even when coated and dried at a low temperature (column 1, line 16). In addition, the core-shell copolymer is prepared by well known polymerization methods such as emulsion polymerization (column 6, lines 43-46). Therefore, it would have been obvious to use a non-crosslinked polymeric particle which will be soluble in the continuous phase of Bentley et al and has the core-shell structure of Shinoda et al, for obtaining a cured film with full gloss and excellent physical properties such as water resistance, weather resistance and thermal stability.

With respect to the gelation time, in light of the fact that composition of Bentley et al in view of Shinoda comprises substantially similar components as that of the instant invention, one of ordinary skill in the art would have a reasonable basis to believe that the composition would exhibit similar properties including a gelation time, as measured at 30^0C, of one hour or less. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

4. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwartz (US 2,872,429) in view of Schultes et al (WO 02/20634).

Prior to setting forth the rejection, it is noted that WO 02/20634 (WO) is being utilized for date purposes. However, US equivalent for WO, namely, Schultes et al (US

7,179,852) is referred to in the body of the rejection below. All column and line citations are to the US equivalent.

Schwartz et al disclose thermoplastic resins which are gelled at room temperature and atmospheric pressure to elastomeric plastigel (column 1, lines 53-57). The thermoplastic resins include methyl methacrylate - ethyl methacrylate copolymers and homopolymers of ethyl methacrylate (column 1, lines 63-71).

The elastomeric composition is formed by initially plasticizing the powdered thermoplastic resin to thin paste, and subsequently adding the gelling accelerator to resultant plastisol to form the elastomeric plastigel (column 2, lines 37-41) i.e. reads on the two pack composition of present claims.

The liquid gelling solution contains at least two functional components, a plasticizer for the thermoplastic resin and a gelling accelerator (column 3, lines 17-19). Any plasticizer capable of wetting, dissolving or swelling (i.e. thermoplastic resin can be insoluble in the plasticizer) the thermoplastic resins is used in preparing the initial plastisol or in formulating the gelling solution (column 3, lines 40-43). Examples of plasticizers include dialkyl phthalates such as dioctyl phthalates, adipates, phosphates, glycollates etc. (column 3, lines 40-49).

To cause rapid gelation at room temperature, the liquid gelling solution must contain one of the gelling accelerator in addition to the plasticizer, and ethylene glycol diacetate is the preferred gelling accelerator (column 4, lines 4-9). Examples of gelling accelerators include diethylene glycol monoaceate and reads on the organic solvent of present claims 1, 4 and 5. Plasticizers such as dioctyl phthalate read on the organic solvent of claims 1 and 4. Elastomeric plastigels are formed in from three to seven minutes when liquid gelling solutions containing from 65 to 82 percent by volume of

plasticizer and 35-18 percent by weight of gelling accelerator is used (column 4, lines 17-22). An elastomeric plastigel is formed at room temperature by using a ratio of liquid gelling solution to thermoplastic resin of from 0.45:1 to 27.5:1 (column 4, lines 37-40).

Schwartz et al is silent with respect to organic solvent having sufficiently high dissolving power to dissolve polymer particles; and core-shell nature of acrylic polymer particles formed by emulsion polymerization.

However, Schwartz et al in the general disclosure teach that any plasticizer capable of dissolving, swelling or wetting can be used in the composition. Examples in Schwartz et al include dioctyl phthalate as a plasticizer which is a homolog of diisononyl phthalate used in the examples of present application and the two-part composition of Schwartz et al gels at room temperature in 3 to 7 minutes (i.e. less than 60 minutes). In addition, gelling accelerator reads on the organic solvent of present claims. Therefore, given that the two-part composition of Schwartz et al comprises substantially similar ingredients and exhibits a similar gelling behavior as that of the present claims, it is the examiner's position that plasticizer and gelling accelerator of Schwartz et al would intrinsically possess the power to dissolve the fine acrylic polymer particles.

With respect to core-shell nature of polymer particles formed by emulsion polymerization, Schultes et al teach moulding compositions that are characterized by excellent mechanical properties obtained by low content of impact-resistance modifier (abstract). Core-shell polymer comprises alkyl methacrylate monomer such as ethyl methacrylate and methyl methacrylate (column 3, lines 5-31). The monomer build within the core has a T_g of 30^0C to 105^0C (column 4, lines 65-67). It is noted that homopolymer of ethyl methacrylate has a T_g of 65. Core-shell polymers are prepared by emulsion polymerization process (column 5, lines 37-67). Therefore, it would have been obvious

to use ethyl methacrylate as a monomer to form the core-shell polymer because Schwartz et al generically teach a copolymer comprising at least 35% by weight of ethyl methacrylate and Schultes et al has shown that core-shell polymers prepared by emulsion polymerization of ethyl methacrylate in the core provides acrylic polymer particles with excellent mechanical properties and one of the ordinary skill would expect the core-shell polymer of Schultes to work in the two-part composition of Schwartz et al and yield a molding with excellent mechanical strength.

Response to Arguments

5. Applicant's arguments filed 11/12/2008 have been fully considered but they are not persuasive. Specifically, applicant argues that (A) curing system, of Bentley et al, employing a condensation polymerization reaction generates heat and requires extreme caution. The present claims do not require this caution; (B) Bentley et al do not employ core-shell particles; and (C) Bentley states that the polymer may be one which is inherently insoluble and this insolubility may be achieved by introducing sufficient degree of crosslinking. Thus, the only non-crosslinked type microparticles that are used in Bentley are those which are inherently insoluble in the liquid (emphasis added by applicant).

With respect to (A), it is the examiner's position that present claims are directed to a composition and claim limitations are met by the composition of Bentley et al. It is noted that the features upon which applicant relies (i.e., extreme care in handling the composition of Bentley et al is not required by present claims) are not recited in the

rejected claim(s). See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to (B), applicant's attention is drawn to new grounds of rejection in paragraph 3 above necessitated by amendment.

With respect to (C), as stated earlier in the advisory dated 9/24/2008, applicant's attention is drawn to column 3, lines 50-55 of Bentley et al where it states that "when a cured film is required to exhibit a full gloss, it may be advantageous if the microparticles can flow and such microparticles will be of the non-crosslinked type (column 3, lines 50-55). In cases where the polymer is not crosslinked, it would be soluble in the continuous liquid phase (column 3, lines 38-40)." Thus, it is clear that Bentley et al disclose a microparticle that can be non-crosslinked and when non-crosslinked would be soluble in the continuous liquid phase i.e. non-crosslinked polymer is a microparticle (i.e. it is insoluble in the dispersed phase) which is soluble in the continuous liquid phase and the continuous liquid phase is completed only shortly before application of a system to a substrate when provided as a two-pack system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARUNA P. REDDY whose telephone number is (571)272-6566. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. P. R./
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796